

**EXHIBIT BB**

**TO DECLARATION OF MATTHEW D. BROWN  
IN SUPPORT OF FACEBOOK, INC.'S OPPOSITION  
TO PLAINTIFFS' MOTION FOR CLASS CERTIFICATION**

**[PUBLIC REDACTED VERSION]**

Page 1

1                   UNITED STATES DISTRICT COURT  
2                   NORTHERN DISTRICT OF CALIFORNIA  
3                   SAN JOSE DIVISION

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6       ANGEL FRALEY; PAUL WANG, et     )  
7       al.,                                      )  
8       Plaintiffs,                              )  
9       vs.                                      )     No. CV-11-01726LHK  
10      FACEBOOK, INC., a                      )  
11      corporation; and Does 1-100,    )  
12      Defendants.                            )  
13      \_\_\_\_\_)

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15  
16                   VIDEOTAPED DEPOSITION OF FERNANDO TORRES  
17                   WEDNESDAY, APRIL 11, 2012

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21  
22      Reported by: KELLI COMBS, CSR NO. 7705  
23      Job No. SF141744  
24      PAGES 1 - 280

	<p>1 FERNANDO TORRES,  2 after having been duly sworn, testified as follows:  3 ---00---</p> <p>4</p> <p>5 10:03:28</p> <p>6 THE VIDEOGRAPHER: Good morning. We're on  7 the record at 10:11 a.m., on April 11th, 2012. This  8 is the video recorded deposition of Fernando Torres.  9 My name is Shawn Phillips, here with our court  10 reporter Kelli Combs. We're here from Veritext 10:11:55  11 National Deposition and Litigation Services, at the  12 request for Defendant.</p> <p>13 This deposition is being held at 515  14 Folsom Street in San Francisco. The caption of this  15 case is Angel Fraley, Paul Wang, et al., v. 10:12:10  16 Facebook, Incorporated, a corporation, and Does 1  17 through 100, case number CV-11-01726LHK.</p> <p>18 Please note that the audio and video  19 recording will take place unless all parties agree  20 to go off the record. Microphones are sensitive and 10:12:32  21 may pick up whispers, private conversations and  22 cellular interference.</p> <p>23 At this time, will counsel and all present  24 identify themselves for the record?</p> <p>25 MR. ARNS: Robert Arns, for Plaintiffs. 10:12:45</p>
Page 2	Page 4
<p>1 APPEARANCE OF COUNSEL:</p> <p>2</p> <p>3 FOR PLAINTIFFS:</p> <p>4 THE ARNS LAW FIRM</p> <p>5 BY: ROBERT S. ARNS, ESQ.</p> <p>6 KEVIN M. OSBORNE, ESQ.</p> <p>7 STEVEN WEINMANN, ESQ.</p> <p>8 515 Folsom Street, 3rd Floor</p> <p>9 San Francisco, California 94105</p> <p>10 (415) 495-7800</p> <p>11 rsa@arnslaw.com</p> <p>12 kmo@arnslaw.com</p> <p>13 FOR DEFENDANTS:</p> <p>14 COOLEY, LLP</p> <p>15 BY: JEFFREY GUTKIN, ESQ.</p> <p>16 101 California Street, 5th Floor</p> <p>17 San Francisco, California 94111</p> <p>18 (415) 693-2026</p> <p>19 jgutkin@cooley.com</p> <p>20</p> <p>21 Also present: Shawn Phillips, Videographer</p> <p>22 Sandeep Solanki, In-House Counsel for Facebook</p> <p>23</p> <p>24</p> <p>25</p>	<p>1 MR. OSBORNE: Kevin Osborne, for 10:12:50</p> <p>2 Plaintiffs.</p> <p>3 MR. WEINMANN: Steven Weinmann, for</p> <p>4 Plaintiffs.</p> <p>5 MR. GUTKIN: This is Jeff Gutkin from the 10:12:54</p> <p>6 Cooley firm, appearing for Defendant Facebook,</p> <p>7 Incorporated.</p> <p>8 MR. SOLANKI: Sandeep Solanki, for</p> <p>9 Facebook.</p> <p>10 THE VIDEOGRAPHER: Thank you. 10:13:05</p> <p>11 The witness will be sworn in and we can</p> <p>12 proceed.</p> <p>13 (Deponent sworn.)</p> <p>14 EXAMINATION</p> <p>15 BY MR. GUTKIN:</p> <p>16 Q Good morning, Mr. Torres.</p> <p>17 A Good morning.</p> <p>18 Q Again. My name is Jeff, and I'll be</p> <p>19 asking you some questions today.</p> <p>20 Have you been deposed before? 10:13:26</p> <p>21 A Yes, I have.</p> <p>22 Q How many times?</p> <p>23 A Four.</p> <p>24 Q Four times.</p> <p>25 And were all of those in connection with 10:13:31</p>

Pages 2 to 5

<p>1           THE VIDEOGRAPHER: This marks the 12:57:06      2 beginning of Disk 3 in the deposition of Fernando      3 Torres. The time is 1:42 and we're on the record.      4 BY MR. GUTKIN:      5       Q Mr. Torres, I'd like to just spend some 01:42:40      6 time kind of talking through the formula and the      7 derivation of the formula that you describe in your      8 declaration.      9       Would it be correct to say that the      10 purpose of the formula that you describe is to allow 01:42:55      11 you to compute the portion of Facebook revenue      12 earned from sponsored stories that you believe is      13 attributable to the use of users' names and profile      14 pictures in those stories?      15       A Yes, to calculate what's attributable to 01:43:13      16 the friend endorsement.      17       Q And that's what you refer to as      18 incremental revenue or IR, correct?      19       A Yes.      20       Q And it's the difference between the 01:43:28      21 revenue generated by the sponsored story and the      22 revenue that would have been generated by the      23 hypothetical ad that would have run in its place if      24 Facebook didn't show the sponsored story; is that      25 correct? 01:43:40   </p>	<p>1 sponsored stories ads. 01:45:08      2       Q Okay.      3       So let me just break that answer into two      4 pieces.      5       I was saying in my first kind of simplest 01:45:14      6 expression of the formula you're using that it's the      7 actual revenue times one minus F, and you said the      8 actual revenue is equal to the cost per click times      9 the click-through rate?      10      A Yes. 01:45:33      11      Q If I told you this sponsored story ad      12 campaign earned Facebook \$500, you wouldn't need to      13 use the cost per click and click-through rate,      14 right? You could just say it's \$500 times one minus      15 F equals the incremental revenue? 01:45:46      16      A Correct.      17      Q Okay.      18      And then also in your answer, you were      19 just saying that F -- what F reflects is the ratio      20 of the CTR of some comparison ad to the sponsored 01:46:01      21 story, correct?      22      A Yes.      23      Q So it's the click-through rate of the      24 comparison ad divided by the click-through rate of      25 the sponsored story gives you the F value? 01:46:17   </p>
<p style="text-align: center;">Page 94</p>	<p style="text-align: center;">Page 96</p>
<p>1       A Yes. 01:43:42      2       Q And so that incremental revenue would --      3 should, in your view, be the difference between what      4 Facebook earned from running the sponsored story and      5 what it would have earned if it had not run the 01:43:53      6 sponsored story?      7       A Correct.      8       Q And the formula that you propose to use to      9 calculate the IR is -- we'll start with kind of the      10 simple version and -- to make sure if I'm getting it 01:44:08      11 wrong.      12       You take the actual revenue that Facebook      13 earned from sponsored stories and multiply it by one      14 minus F, correct?      15       A Yes. 01:44:27      16       Q Okay.      17       And it's the -- so it's that actual      18 revenue or AR times one minus F which equals the IR      19 which is equal to the plaintiffs' damages, a class      20 member's damages, I should say. 01:44:45      21       A Yes. So just to be clear, the      22 incremental revenue would be the cost per click      23 times the click-through rate of sponsored stories      24 times one minus the factor that relates      25 click-through rates of standard ads with respect to 01:45:01   </p>	<p>1       A Yes. 01:46:19      2       Q Okay.      3       And I think you also said in your report      4 that one minus F represents the fraction of Facebook      5 revenue that's not attributable to conventional ad 01:46:29      6 effectiveness, correct?      7       A Correct.      8       Q Okay.      9       So let's -- we started talking about this      10 earlier, but it's an area that I'm going to have 01:46:39      11 to -- you and I probably will have to talk about for      12 a while.      13       Let's start, first of all, with you      14 explaining to me what is the hypothetical comparison      15 ad and, you know, how will you determine the 01:46:53      16 click-through rate for the ad or ads that you'll      17 need to use for your formula?      18       A Okay. The comparison ads, like in any      19 other hypothetical benchmark that is used to      20 analyze damages, such as in copyright, trademarks, 01:47:24      21 rights of publicity or patents, and intellectual      22 property, in general, would be an ad that is      23 comparable in all the characteristics except the      24 ones that are of interest.      25       Now, those ads are not typically run by 01:47:49      Page 95</p>

Pages 94 to 97

<p>1 methodology in intellectual property damages 01:54:17      2 calculations is to find -- go up in the next level 01:54:35      3 of abstraction and find a suitable comparability 01:54:35      4 selection of what's the comparable universe to that.      5 I think the best example is in patent 01:54:35      6 damages calculations. Patents, by definition, have 01:54:35      7 to be unique and innovative, so there's no 01:54:35      8 unpatented technology that's exactly the same. To 01:54:35      9 calculate damages or reasonable royalties, experts 01:54:35      10 rely on widening the net of the types of royalty 01:54:55      11 rates they look at for comparable transactions, 01:54:55      12 comparable licensing agreements, and there's a 01:54:55      13 series of comparability criteria that are commonly 01:54:55      14 used to establish how wide the universe you're going 01:54:55      15 to use as a benchmark to draw the comparison. 01:55:17      16 So this F in this methodology would be 01:55:17      17 calculated based on those, you know, generally 01:55:17      18 accepted methods of deriving a comparison.      19 BY MR. GUTKIN:      20 Q Okay. 01:55:37      21 So looking at that patent example, would 01:55:37      22 you ever take all the patents from a particular 01:55:37      23 industry, like the automotive industry, and use that 01:55:37      24 as the benchmark to value, say, a group of 10,000 01:55:37      25 patents all as one -- all at once? 01:55:55</p>	Page 102	<p>1 it -- of a portfolio of 1800 patents. They were 01:57:52      2 subdivided into four groups by the broad 01:57:52      3 technology, and this was telecommunications, so 01:57:52      4 there were four generations of technology. For 01:57:52      5 each of those groups, a royalty rate was -- was -- 01:58:06      6 was determined based on comparables in the industry 01:58:06      7 for that generation of technology.      8 Q And was that in a litigation or was that 01:58:06      9 like a valuation consulting work?      10 A It was consulting for the IRS. They were 01:58:22      11 considering litigation, I suppose, and they needed 01:58:22      12 a second opinion as to the value.      13 Q Okay.      14 That's the value of a patent portfolio?      15 A Of a patent portfolio. 01:58:38      16 Q So the 1800 patents were broken into four 01:58:38      17 separate groups?      18 A By -- yes.      19 Q In that particular case?      20 A Yes. 01:58:47      21 Q Now, would you do any analyses that you 01:58:47      22 suggest doing in your declaration, would they ever 01:58:47      23 disaggregate the analysis at more granularly than 01:58:47      24 the campaign level? Such as at the user level?      25 A No, I wouldn't -- wouldn't think so. 01:59:13</p>	Page 104
<p>1 A In that hypothetical question, I think 01:56:06      2 the problem is for that particular industry, there 01:56:06      3 are different areas of technology, and you wouldn't 01:56:06      4 have to go that wide as to benchmark on the 01:56:06      5 industry. You can benchmark on electronics or 01:56:20      6 electronics applied to -- to consumer durables as 01:56:20      7 your benchmark if what you're doing is deriving the 01:56:20      8 context for a royalty rate for an electronic 01:56:20      9 component for a car.      10 So depending on the industry or depending 01:56:44      11 on the -- on the market segment one is considering, 01:56:44      12 it's the characteristics of the -- of the good, the 01:56:44      13 characteristics of the ad that would come into play 01:56:44      14 to derive, you know, what would be the proper 01:56:44      15 comparable or set of comparables. 01:57:06      16 Q So let me ask, sticking with that patent 01:57:06      17 in this patent context for a second, let's make the 01:57:06      18 industry more specific, like you said, electronics 01:57:06      19 parts for use in consumer durables, I think you 01:57:06      20 said. 01:57:28      21 In your -- have you ever valued a group 01:57:28      22 of, say, a thousand patents all in one fell swoop 01:57:28      23 using an industry comparison like that?      24 A I did a review and I did my own 01:57:50      25 calculations for that review -- that's part of 01:57:50</p>	Page 103	<p>1 There's-- because if you were to try to find the 01:59:16      2 proper comparable for a specific friend-endorsed 01:59:16      3 ad, you would have to find ads that referred to 01:59:16      4 that friend endorsing, right?      5 And even in the case of celebrities that 01:59:38      6 have a lot of endorsements, you always need to 01:59:38      7 place it in -- in -- in context because as you 01:59:38      8 narrow the field, you could be getting into an 01:59:38      9 agreement that has so many dimensions that are 01:59:38      10 outside of just the endorsement that it would be 01:59:56      11 very, very hard to derive a reliable value.      12 Q So just to first clarify, you are not 01:59:56      13 proposing that you would ever go down to the user 01:59:56      14 level at its most granular, your method would be at 01:59:56      15 the campaign level? 02:00:16      16 A For each -- we're not valuing the -- 02:00:16      17 we're not comparing the click-through rate of a 02:00:16      18 friend of a specific individual. It's the 02:00:16      19 click-through rate of a campaign, the click-through 02:00:16      20 rate of an ad campaign. That ad campaign can be a 02:00:31      21 very specific one, one for an advertiser or one for 02:00:31      22 an industry or at the whole, you know, U.S. members 02:00:31      23 of Facebook level. The click-through rate would 02:00:31      24 not be calculated per person, but each person would 02:00:31      25 have participated in a series of campaigns as part 02:00:31</p>	Page 105

Pages 102 to 105

<p>1 of the sponsored stories, so the aggregation of all 02:00:58      2 of those values from all the other ones, from all      3 the appearances would -- would be, you know -- link      4 to a specific member. So each specific member of      5 the class has a number that's associated with them. 02:01:14      6 But it's not that there's an ad that would be a      7 comparable ad to add by X person.</p> <p>8 Q Okay.      9 Let me just unpack it a little.      10 The F value will not be specific to each 02:01:35      user, correct?      12 A No. The F factor is specific to      13 sponsored stories at the level of granularity that      14 is suitable for the data that's produced.</p> <p>15 Q So the F value could either be one F per 02:01:53      16 sponsored story campaign, one F per appropriate      17 industry subgroup or just one F for all sponsored      18 stories; is that correct?      19 A Yes, as I sit here, that would be one --      20 you know, the thrust of how this could be 02:02:15      implemented in practice.</p> <p>22 Q Okay. Are there any other --      23 MR. ARNS: Is that your pen?      24 THE WITNESS: No.</p>	<p>1 A And, of course, the definition of an 02:03:47      2 industry could be different -- could be, you      3 know -- could be defined at different levels of      4 generality so, you know, that -- that would depend.</p> <p>5 Q So -- and just before I move on from this, 02:04:09      6 I want to make sure I have it right.      7 In order to do one F per sponsored story      8 ad campaign, you will need something in the data      9 that tells you for each sponsored story ad campaign      what the right comparison ad would be? 02:04:27</p> <p>11 A Yes. For each impression of the story,      12 we should know or we expect to know who was      13 featured so we can attribute to that person, and      14 the cost per click and the click-through rate of      15 the campaign and information to calculate the 02:04:52      16 proper F, which depends on how it's being      17 produced -- you know, how specific the data is, it      18 would be the campaign, the industry, the type of      19 sponsored story ad, or it could be, you know, the      20 general average F for -- for the whole group. 02:05:16</p> <p>22 Q Okay.      23 I appreciate that answer. I think maybe I      24 need to ask my last question again, though.      25 In order to do -- to calculate one unique      F value per sponsored story campaign, you would need 02:05:35</p>
<p style="text-align: center;">Page 106</p> <p>1 BY MR. GUTKIN:      2 Q Are there any other approaches to      3 computing the F that you, sitting here today,      4 contemplate doing or that you describe anywhere in      5 your declaration? 02:02:39      6 A Excuse me, I didn't --      7 Q Let me try again. We're talking about a      8 complex subject and I'm not an economist.      9 So in terms of the level of specificity at      10 which F will be computed, are there any other 02:02:56      11 alternatives besides the three I just listed, one F      12 per campaign, one F per appropriate industry      13 subgroup and one F per all Facebook sponsored      14 stories? Are there any other levels of specificity      15 that you contemplate using? 02:03:15      16 A Well, yes. There -- there could be -- it      17 could be different -- the F could be different by      18 the type of sponsored story ad, there being      19 different ways of generating those ads.      20 Q Just to interrupt there, do you mean one F 02:03:32      21 for "Like" sponsored stories, one F for check-in      22 sponsored stories, one F for page-post "Likes"; is      23 that what you meant by that answer?      24 A Yes, it is.      25 Q Okay. Go on. 02:03:44</p>	<p style="text-align: center;">Page 108</p> <p>1 the data to reflect, here is an appropriate 02:05:40      2 comparison ad, that is, you will not be able to hunt      3 for and find an appropriate comparison ad in every      4 case, correct?      5 A Right. There may not be an exact simile 02:05:57      6 of a campaign without the friend endorsement to do      7 a strict comparison. We may have to, you know, use      8 a suitable comparable ad, and that may be at the      9 campaign level, at the industry level or beyond.      10 Q Okay. 02:06:27      11 Now, even if you did it at the campaign      12 level, it's correct, isn't it, that the F you would      13 get would be the average F across all the users who      14 appeared in that campaign, correct?      15 A Yes, that is correct because that's the 02:06:44      16 nature of fair market value.      17 Q So let me just first make sure the answer      18 was yes, correct?      19 A Yes.      20 Q And now, if you would, please explain to 02:06:55      21 me what you mean by "that's the nature of fair      22 market value"?"      23 A Because it's the market that -- it's in      24 the market that the value is determined by the      25 interaction of supply and demand, and that price, 02:07:09</p>

Page 107

Page 109

Pages 106 to 109

1 that's the -- the cost per click reflects that, 02:07:13 2 that interaction. 3 So a specific ad, a specific impression 4 of one ad may not be representative of the market 5 value of that specific ad. 02:07:30 6 Gathering the information for a 7 sufficient number of ads, whether they relate to a 8 campaign or another grouping, allows you to reflect 9 a more representative number for the parameters 10 that we're considering, such as click-through rates 02:07:53 11 and the cost per click.	1 a movie might have higher click-through rates than a 02:10:34 2 sponsored story for a airline jet, for example; is 3 that right? 4 A You mean for an airline or for the sale 5 of the jet. 02:10:55 6 Q For the purchase of a jet. 7 A Sure. I mean, those would be two 8 extremely different products. 9 Q Yeah. So maybe that was a bad example, 10 but I was trying to understand what you meant by 02:11:07 11 your last answer, that there are certain products 12 where they're, you know, available for immediate 13 purchase versus other things. 14 A So, for example, in promoting advertising 15 or marketing a movie, a studio -- what they 02:11:23 16 basically need is to get the name of the movie 17 across, get some positive attributes that link to 18 that movie, and the person needs to go out and 19 physically go and see the movie. 20 So that's a totally separate thing. 02:11:40 21 They're not going to go to the movie by clicking on 22 any -- on that particular ad from the studio as 23 opposed to, maybe, applying for a credit card where 24 the link in the sponsored story ad can take you to 25 a landing page that's an application for that 02:12:02
25 You look at the detailed information to 02:08:50 Page 110	Page 112
1 calculate the appropriate click-through rate for the 02:08:52 2 group, which is sort of -- it's the average of the 3 appropriate click-through rates of each user in the 4 group? 5 A Correct. 02:09:06 6 Q And if you were to aggregate at the 7 industry level, is it correct that the F factor you 8 would determine would be the -- represent the 9 average value of the endorsement of all users who 10 appeared in a sponsored story that was within that 02:09:28 11 industry? 12 A Yes, that would be the goal to have -- to 13 calculate the F that would reflect the market value 14 of the friend endorsement in which they 15 participated. 02:09:52 16 Q Sitting here today, what do you know about 17 the different industry groups that would be 18 appropriate to use? 19 A Well, there are industries that have 20 higher click-through rates because the nature of 02:10:04 21 their ads or the nature of their products lends 22 itself more or less to an immediate reaction by the 23 consumer. You know, that's -- that's the main -- 24 Q Well, so before I ask a follow-up, just to 25 clarify that, so you're saying a sponsored story for 02:10:29 Page 111	1 credit card. 02:12:04 2 Q Okay. 3 Do you know if -- if there can or cannot 4 be multiple types of sponsored stories run within 5 the same campaign? 02:12:17 6 A My recollection from the -- the research 7 that I did is it may be possible to specify it. 8 There is -- there's different ways of defining a 9 campaign, also. So from a marketing or from the 10 advertiser's perspective, they might have a 02:12:44 11 campaign to promote, let's say, a video game. From 12 Facebook advertising's perspective, there may be 13 different campaigns you can set depending on what 14 features of the -- of the product you're featuring. 15 because each campaign can have a different budget, 02:13:02 16 a different cost per click or a different cost per 17 thousand bid, you know. There's different ways of 18 defining it. 19 So there's a campaign as defined within 20 the actual purchase of the advertising product and 02:13:17 21 a campaign from a economic or advertiser's point of 22 view. 23 Q Going back to my question about the 24 industries, have you yet seen any of the data you 25 would need to analyze in order to determine whether 02:13:36 Page 113

Pages 110 to 113

1 | **there's ten industry subgroups versus a thousand 02:13:39**  
2 | **industry subgroups that you would need to examine?**  
3 | A No, I haven't seen enough data to  
4 | conclude that.

1 expressed, there is not enough -- not enough 02:16:53  
2 information to do that and, therefore, a general F  
3 factor would apply.

4 Q So for that group, let's say that across  
5 the 2011 sponsored stories, there are a billion 02:17:10  
6 sponsored stories purchased by ad agencies. You're  
7 saying you would just group together for that F  
8 calculation all of the sponsored stories purchased  
9 by those ad agencies?

10 A Yes. The method would have to be applied 02:17:31  
11 within the limitations of the data produced.

12 Q And you don't know, sitting here today,  
13 whether this is -- this question about ad agencies  
14 is going to be a problem for 5 percent of the data  
15 or 75 percent of the data, correct? 02:

16 A I don't know for a fact exactly, you

17 know, how big of a problem it could be.

18 Q Okay.

19 For the things that are not -- let's even  
20 say not for ad agencies, is it your intent to get a 02:18:02  
21 list of every sponsor of a sponsored story and then  
22 put those into industry groups that you will deem  
23 appropriate?

24 A We would -- in that sense, if that  
25 information is identifiable by sponsor ad, that 02:18:25

Page 114

5 that's -- that's why we would need to classify them 02:15:35  
6 in a broader -- you know, in a broad group.

1 would be in the database so the software will be 02:18:31  
2 able to classify them if we have enough  
3 information. So by running through the database,  
4 they would classify it one way or the other.

5 Q I'm sorry, I just missed the very end of 02:18:51  
6 what you said.

7           What database or soft- -- I think you said  
8       "software."

9                   What software is going to tell you how to  
10          correctly classify the following sponsored story      02:19:02  
11          purchasers: Wal-Mart, Warrior Dash, Popcorners,  
12          Mormon.org, the Democratic Party and Michelle  
13          Bachmann?

14 A The software is not going to tell me how  
15 to classify. We would use software to run through 02:19:22  
16 the database, and the criteria would be set from  
17 outside, right?

18 So based on an initial examination of the  
19 data of what is being produced, criteria would be  
20 set up to say, well, if the sponsored ad is linked 02:19:42  
21 only to an agency, use the general F. If the  
22 sponsored ad is linked just to an industry, use  
23 that industry's F, and if the sponsored ad is  
24 linked to a specific advertiser, maybe use that  
25 specific advertiser's F, if it exists. 02:20:01

9 or software products that purchase ads. So, you  
10 know, there's not a direct link that Facebook has. 02:15:55  
11 So I would expect that, you know, there may be --  
12 there may be those kinds of problems with the data  
13 that is produced.

14 The way to deal with it is that the  
15 methodology is still sound and is still valid; just 02:16:13  
16 need to adapt to the practical application of the  
17 information.

18 Q Well, you're just telling me that you can  
19 adapt. So if I've got a group of 100 million  
20 sponsored story impressions where they are all 02:16:28  
21 purchased by Johnson & Smith Ad Agency, how will you  
22 classify those into any industry or otherwise break  
23 them down?

24 A We -- you know, with that information as  
25 set out in that hypothetical that you -- that you 02:16:47

Page 115

Page 117

<p>1 millions of people where their endorsement has no 2 effect on click-through rate or a negative effect on 3 click-through rate, could be; do you agree? 4 MR. ARNS: Objection; asked and answered, 5 argumentative. 02:43:13 6 THE WITNESS: Again, I think there's 7 likely to be a percentage. I would not expect it to 8 be high, you know, a very high number because that 9 would mean that overall, if you take an average, the 10 effectiveness of sponsored stories would be low. 02:43:31 11 All indications are that the effectiveness 12 of sponsored stories ads is high and, in fact, 13 that's really the -- one of the main goals of 14 advertising through a social network. 15 BY MR. GUTKIN: 16 Q So it could be, you expect it to be a low 17 percentage, and that means what, 10 percent or less? 18 Your best estimate. 19 MR. ARNS: Object; lack of foundation. 20 THE WITNESS: I would agree that 02:44:01 21 10 percent or less would be a low percentage. 22 BY MR. GUTKIN: 23 Q Okay. 24 The number of individual people where 25 their endorsement has zero or negative effect on 02:44:07</p>	02:43:03	<p>1 show and say and purport that sponsored stories ads 02:46:01 2 are more effective than standard ads, sometimes 3 two-and-a half times more effective. So if there 4 are people who turn -- who turn potential 5 customers away, they're probably very, very few. 02:46:27 6 Q In the 5 to 10 percent range? 7 MR. OSBORNE: Misstates testimony. 8 THE WITNESS: I really think that when we 9 see the data, we'll probably see that if we could measure that, it would be around there. 02:46:44 10 BY MR. GUTKIN: 11 Q But let's go one step at a time. 12 There's nothing in your declaration that 13 shows any way that you will measure the endorsement 14 power of users, correct? Individual users? 02:46:55 15 A The methodology measures the damages 16 based on the fair market value of friend 17 endorsements, and it doesn't depend on a -- on an 18 evaluation on an ad-by-ad basis, which can't be 19 done. 02:47:24 20 Q Well, that wasn't my question. It was -- 21 there's nothing in your methodology, and if there 22 is, then point me to it. 23 There's nothing in your methodology that 24 determines whether any individual user has a 02:47:35 25</p>
<p>1 click-through rate, you agree it's reasonable to say 02:44:11 2 5 to 10 percent? 3 A I would expect that number to be within 4 that range, probably. I don't have -- it's not the 5 subject of what I analyzed, and I haven't seen 02:44:23 6 enough information to derive an opinion on that. 7 So it's my expectation that, yeah, it could be 8 around that number because it's a number that does 9 not dominate the whole universe. 10 Q Okay. 02:44:41 11 How would you test if it's 5 percent, 12 10 percent, 15? Is there any part of what you're 13 proposing to do that would test for how many 14 individual users their effect on click-through rates 15 is zero or negative? 02:44:56 16 A In -- the methodology considers the fact 17 that there's variations in the effectiveness of 18 some of the friend endorsements by using averages. 19 And averages are the device that are used to negate 20 the effect of those outliers. 02:45:28 21 My expectation is that this fringe 22 hypothetical you're proposing is not going to be 23 representative of the situation, because all the 24 sampling, all the experiments and Facebook's own 25 advertising and declarations in the media, I mean, 02:45:50</p>	02:44:11	<p>1 positive, a zero or a negative effect on 02:47:38 2 click-through rates for the sponsored stories they 3 appear in; do you agree? 4 MR. ARNS: Object; argumentative. 5 THE WITNESS: I don't agree in the sense 02:47:50 6 that to the extent that phenomenon would impinge on 7 the numbers is reflected in the click-through rate 8 of the sponsored stories. 9 BY MR. GUTKIN: 10 Q So you said before that the averages 02:48:03 11 negate these outliers. And what you mean by that is 12 that when you average together a group of users, 13 then these outliers, you can't see them anymore if 14 the group results in a higher click-through rate as 15 compared to the comparison ad; then that's the 02:48:23 16 number you use for everyone in the group, including 17 the outliers, correct? 18 A Not completely correct. By using the 19 averages, you're -- you're ruling out the bias from 20 specially ineffective people, and you're also 02:48:43 21 ruling out the effect of specially effective 22 people. It could be opinion leaders that are 23 included in that social network. And it could be, 24 you know, social outcasts included in the social 25 network. 02:48:59</p>

Page 135

Page 137

Pages 134 to 137

Pages 138 to 141

1 what industry they're in, or would you just assign 2 it to the industry of all individuals who purchased 3 a sponsored story? 4 MR. OSBORNE: It's an incomplete 5 hypothetical and it's vague. 6 THE WITNESS: So in that hypothetical, 7 there would be -- as in the case of an individual, 8 there would be a series of advertisers associated 9 with these ads that cannot be classified, and 10 they -- I mean, in the same fashion that in the 11 national accounts there is -- in the classification 12 of industries, there is always a category for not 13 elsewhere classified, so it would be an NEC for 14 sure. 15 BY MR. GUTKIN: 16 Q So sort of every sponsored story that you 17 couldn't fit into an industry would go into the pool 18 of not otherwise -- not eligible for classification, 19 is that what -- 20 A Not elsewhere. 21 Q I'm sorry. 22 Every sponsored story that you can't put 23 into an industry would be grouped together in the 24 not elsewhere classified pool? 25 MR. OSBORNE: Same objections.	05:00:00	1 Q Okay. 2 I take it that if the name of a particular 3 sponsor is an unfamiliar name, like John Smith, you 4 don't know whether John Smith is a maker of shoes or 5 an individual just running a sponsored story for 6 their plant grooming business. I mean, it could be 7 anything. So I take it that a lot of such sponsors 8 would fall into the not elsewhere classified 9 category. 10 Do you agree? 11 MR. OSBORNE: It's an incomplete 12 hypothetical, it's compound, and it lacks 13 foundation. 14 THE WITNESS: I agree that in that 15 situation that would be a challenge. Now, there 16 could be other circumstances in other hypothetical 17 situations where Facebook analytics has other 18 sources of information that allow them to classify 19 advertisers because when they set up the account, 20 they can get more information. 21 BY MR. GUTKIN: 22 Q But you're not -- don't know sitting here 23 today, one way or the other, whether that data is 24 available? 25 A I don't know for certain, no.	05:02:15
	Page 198		Page 200
1 THE WITNESS: That would be one way of 2 doing it, yes. 3 BY MR. GUTKIN: 4 Q Are there any other ways, sitting here 5 today, that you would be able to do it? 6 MR. OSBORNE: Same objections. 7 THE WITNESS: I don't think so. 8 BY MR. GUTKIN: 9 Q Okay. 10 This issue that we've talked about a bit 11 of at what level you will do individualized 12 calculations of F or aggregated calculations of F, 13 is that described anywhere in your declaration that 14 you might do it by industry or you might do it 15 overall for all of Facebook's sponsored stories? 16 A No. The methodology set out in the 17 declaration is on a general basis. 18 Q So you don't say anywhere whether it could 19 be all -- one F for all of sponsored stories, or 20 20 different Fs for the 20 industries, or far more at a 21 more disaggregated level in the declaration, 22 correct? 23 A Correct. The methodology is general 24 enough to be applicable for any of those 25 subclassifications.	05:01:16	1 Q And you haven't seen any of that data 2 sitting here today? 3 A No, I haven't seen that data from 4 Facebook, no. 5 Q Okay. 6 Let's say that you -- 7 Well, do you know how many different 8 sponsored story sponsors there are, whether it's 9 20,000, 80,000, 400,000? 10 Do you know? 11 A If you would clarify what "sponsors" 12 would be. 13 Q Sure. 14 Different purchasers of sponsored stories. 15 Do you know how many unique purchasers of sponsored 16 stories there are? 17 A I don't know the exact number of 18 advertisers that use the sponsored stories ad 19 product. 20 Q Could be 20,000? Could be 400,000? 21 A Could be. 22 Q Okay. 23 Let's just pick a number in the middle and 24 say it's 200,000. 25 Would it be your proposal that someone	05:03:33
	Page 199		Page 201

Pages 198 to 201

<p>1 sits down and eyeballs each name on the list of 05:04:42      2 200,000 for assignment to an industry, where      3 possible?      4 A In that hypothetical, no.      5 Q How would it be done? 05:04:54      6 A In that hypothetical situation, I would      7 ask a programmer to generate a program that looks      8 up the names or the entities listed on that      9 database and cross-reference them to other      10 databases that may be publicly available for that 05:05:21      11 situation to try to identify the industry.      12 So, for example, you know, just -- it's      13 not something that a person would have to sit down      14 and look at every name and just imagine what      15 industry. There are systematic ways of doing it. 05:05:43      16 Q So that's, frankly, kind of a creative      17 idea, but are you aware that it's possible to write      18 a program that just takes a list of names and      19 Googles them or uses some other method of trying to      20 assign each to an industry? Are you aware whether 05:06:01      21 such a program exists?      22 MR. ARNS: Object; compound,      23 argumentative.      24 THE WITNESS: I did not say that that      25 specific program exists. In the hypothetical you 05:06:12</p>	<p>1 would do this with a list of 200,000 sponsor names? 05:07:51      2 A My basis is my experience. The number of      3 sponsored names doesn't matter.      4 Q Your experience in software usage?      5 What experience informs your belief that 05:08:12      6 this is possible?      7 A My experience in economics; my experience      8 as a -- as an administrator of companies; my      9 experience as a software developer before; and      10 my -- the information I gather, my -- my experience 05:08:36      11 from being very familiar with the technology      12 industry.      13 Q Have you ever seen such a program?      14 A That specific program? I've seen      15 something very similar. 05:08:54      16 Q What was that?      17 A And I use it very often. The -- for      18 intellectual property disputes and for      19 negotiations, we often need to refer to comparable      20 royalty rates and contract terms and licensing 05:09:09      21 transactions. So there are several providers that      22 actually feed off of the EDGAR database      23 registrations and pull the licensing contracts that      24 come up in SEC disclosures of companies. They      25 gather that information, and they classify it so we 05:09:30</p>
<p style="text-align: center;">Page 202</p> <p>1 were posing, that's what I would do. I would ask a 05:06:15      2 programmer to devise a program. I'm not saying that      3 I know that it's going to be Python script or some      4 other application of Java. It doesn't matter. In      5 that situation there is information accessible that 05:06:30      6 can lead to that classification. And for example,      7 some -- some of the advertisers on that list that      8 could be detected by the program running down the      9 list could be publicly traded companies. Now,      10 publicly traded companies list their North American 05:06:55      11 industry classification numbers in their disclosures      12 to the SEC, and that's publicly available through      13 the EDGAR database. So yes, a software program      14 could be written to run down the list, identify      15 publicly traded companies, go to EDGAR, pull out the 05:07:18      16 information for the NAIC codes and classify them,      17 you know, introduce the code into this database.      18 And I'm sure all of the ones that are not publicly      19 traded, it would be very difficult to get the proper      20 information. But that is one way of doing it in 05:07:37      21 that hypothetical.      22 BY MR. GUTKIN:      23 Q So I understand the description of the      24 program conceptually, what's your basis for saying      25 that it's possible to write such a program that 05:07:48</p>	<p>1 can use it in a database to search for those 05:09:32      2 royalty rates. And they do this with a two-person      3 firm, neither of whom are -- are -- are software      4 developers or are not looking at each contract.      5 There is a way to systematically do that. 05:09:48      6 Q Okay.      7 For the actual execution on your      8 methodology, is it still, in your mind, the three      9 possibilities of generating an F for each individual      10 campaign, generate an F for each industry, or 05:10:09      11 generate an overall F for all sponsored stories, or      12 over the course of the day, I mean, have you -- I'm      13 just not sure.      14 Have you ruled out the possibility of      15 generating an F for each individual campaign, or are 05:10:22      16 you still thinking you may do that?      17 A In the course of the day, I haven't ruled      18 out any specific possibility. There is also the      19 classification of an F by type of sponsored story      20 ad, depending on the way it's produced. 05:10:40      21 Q So all of those are still on the table?      22 A Yes, they're all possibilities to      23 calculate the proper --      24 Q Can you say --      25 Based on the data you have seen so far, 05:10:53</p>

Page 203

Page 205

Pages 202 to 205

1	record.	05:42:01	1	hypothetical situation in deriving an average F for an industry such as the gaming, software-based games, averaging would be eliminating the bias of outliers, such as this one, and high performers, such as other situations that may arise. So that's	05:44:12
2			2		
3			3		
4			4		
5			5	why we would have used averages.	05:44:35
6			6	BY MR. GUTKIN:	
7			7		
8			8	<b>Q</b> You use averages to eliminate data such as	
9			9	this that shows there are outliers where sponsored	
10	Facebook expected the sponsored story click-through	05:42:21	10	stories actually have a lower click-through rate	05:44:50
11	rate to be higher and the reasons that you think it		11	than equivalent comparison ads?	
12	ought to be higher because it involves a friend		12	A We use averages to eliminate the	
13			13	distortions from small samples in an analysis of	
14			14	the whole.	
15			15	<b>Q</b> But you don't have any basis to say this	05:45:06
16	is a small sample, right?		16		
17			17	<b>Y</b> ou have only looked at three or four	
18	comparisons, and this is one of them, and you		18	haven't looked at the overall data. You have no	
19			19	basis to say that this is some sort of small sample,	05:45:16
20			20	do you?	
21			21	A I do have a basis.	
22	<b>Q</b> For the sponsored story?		22	MR. OSBORNE: Argumentative.	
23	A For the sponsored story ads that they		23		
24	tested, correct.		24	BY MR. GUTKIN:	
25	<b>Q</b> Okay.	05:43:00	25	<b>Q</b> What's your basis?	05:45:27
					Page 228
Page 226					
1	And you haven't done any analysis of the	05:43:01	1	A I do have a basis.	05:45:28
2	overall data, any data outside of this small group		2	<b>Q</b> Go ahead.	
3	of documents, to know whether, in general, the		3		
4	click-through rates are higher or lower for		4		
5	sponsored stories versus comparable ads of other	05:43:12	5		
6	kinds.		6	<b>Q</b> I'm not here to answer questions, but go	
7	<b>D</b> o you agree?		7	on.	
8	MR. OSBORNE: It's asked and answered.		8	A I mean, do you see where I'm --	
9	THE WITNESS: In developing the		9	<b>Q</b> I do. I see you're at the bottom of	
10	declaration and the methodology, there was no data	05:43:22	10	page 1 of Exhibit 583.	05:45:51
11	to be used to analyze, so that -- you know, that's		11		
12	not something that needed or had to or could have		12		
13	been done.		13	<b>Q</b> So it's because --	
14	BY MR. GUTKIN:		14	A So there is a basis to expect that. If	
15	<b>Q</b> And if you blended this Glory of Rome	05:43:39	15	you run an experiment with a wide enough sample,	05:46:00
16	video game sponsored story with, let's say, an F		16	you are more likely to get a higher click-through	
17	calculated for all sponsored stories in the video		17	rate.	
18	game industry, you would actually obscure the fact		18		
19	that an individual instance, the sponsored story had		19		
20	a lower click-through rate than the comparison ad.	05:44:00	20		
21	<b>D</b> o you agree?		21		
22	MR. OSBORNE: It's vague as to "obscure."		22		
23	MR. GUTKIN: Hide.		23		
24	MR. OSBORNE: It's vague.		24		
25	THE WITNESS: In the -- in that	05:44:11	25	<b>Q</b> I'm sorry. 2.6.	05:46:39
Page 227					Page 229

Pages 226 to 229

<p>1 would be able to provide the proper methodology. 06:19:13      2     <b>Q</b> Do you understand that plaintiffs have      3 engaged such an expert, or do you not know one way      4 or the other?      5     A My understanding is that there is a 06:19:24      6 statistician engaged as well.      7     <b>Q</b> So we've been talking all day about the      8 different ways you might be computing F. This is      9 another one that you might use some sampling done by      10 a statistician and use that to compute F? 06:19:42      11     A Correct.      12     <b>Q</b> Okay.      13         Would you be the one who specifies, I need      14 a different F for every industry, or would you just      15 say, you know, whatever you think makes sense is 06:19:59      16 fine, and I'll use -- it will be my formula, but      17 you'll be the one who says you're going to have to      18 compute six different Fs or 10 different Fs or 50      19 different Fs or one F?      20     MR. OSBORNE: Assumes facts, calls for a 06:20:16      21 legal conclusion.      22     THE WITNESS: So if I have to conclude as      23 to how the methodology would be applied, it would be      24 in conjunction with probably the -- a statistical      25 expert to devise the statistical methods that would 06:20:39   </p>	<p>1     <b>you will do sampling or not; is that correct?</b> 06:21:53      2     A That's correct.      3     <b>Q</b> Okay.      4         Are you familiar with the term      5 "homophily"? 06:22:07      6     A Homophily, yes.      7     <b>Q</b> How is it pronounced?      8     A I'm not an expert in linguistics.      9     <b>Q</b> Okay.      10         I figured it might be a term you encounter 06:22:20      11 with some regularity, unlike myself.      12         It's H-O-M-O-P-H-I-L-Y.      13     A Correct.      14     <b>Q</b> I'll just say it as -- I'll pronounce it      15 as homophily, even if someone who hears this 06:22:54      16 videotape may think that I'm embarrassingly mangling      17 the word.      18         What does that term mean?      19     A That's a term that arises in connection      20 with the analysis of social networks or networks in 06:23:04      21 general, but it's very applicable in social      22 networks and economic networks, and that's why I      23 know of it. So in my understanding, it's a      24 characteristic of social organizations, that people      25 tend to group themselves with people that share 06:23:23  </p>
<p style="text-align: center;">Page 242</p> <p>1 produce a result that makes sense for the 06:20:46      2 methodology to be applied.      3     There will be a process of analyzing the      4 data first to see what information is available, and      5 then discussing how best to and most reliably to use 06:21:03      6 that data. The proper methods would be set out and      7 the calculations would be done.      8 BY MR. GUTKIN:      9     <b>Q</b> That discussion and that analysis have not      10 been done yet, correct? 06:21:16      11     A Correct.      12     <b>Q</b> Is it your understanding that it's      13 Dr. Drogan who is the statistical expert, or do you      14 not actually know?      15     A I understand Dr. Drogan is one of the 06:21:27      16 experts in the case.      17     <b>Q</b> Okay.      18         But you don't --      19         I'm just trying to understand, do you know      20 one way or the other if he's the person you would 06:21:37      21 work with if you do sampling, or you don't know?      22     A It's my expectation that I would work      23 with him if that were the situation, yes.      24     <b>Q</b> Okay.      25     And -- but you haven't yet determined if 06:21:50</p>	<p style="text-align: center;">Page 244</p> <p>1 characteristics. So, for example, some cities, 06:23:28      2 cities tend to be segregated by race or income      3 levels. So people gather -- I guess the briefest      4 description is that the birds of a feather flock      5 together. 06:23:50      6     <b>Q</b> Okay.      7         Are you aware of the effect of homophily      8 in social networks that would suggest people who      9 choose to be friends on Facebook tend to have      10 similar interests? 06:24:04      11     A Yes. That is one dimension of social      12 networks.      13     <b>Q</b> Okay.      14         Have you ever read literature suggesting      15 that's true, or is that something you're aware of or 06:24:19      16 not aware of?      17     A I've read literature on the theoretical      18 aspects of the analysis of networks, graph theory      19 and social networks and practical applications and      20 studies of social networks. So that is one 06:24:36      21 characteristic I will be familiar with.      22     <b>Q</b> Okay.      23         To your knowledge, can Facebook -- can      24 Facebook ads be targeted to the friends of people      25 who have "Liked" the advertiser's content? 06:24:58  </p>

Page 243

Page 245

Pages 242 to 245

<p>1 A I understand that that is -- that is one 06:25:12      2 way -- it's one way of targeting ads within      3 Facebook.      4 Q It's called Like Friends of Connections.      5 Are you familiar with that? 06:25:22      6 A I'm not familiar with that term --      7 Q Okay.      8 A -- per se.      9 Q But you're aware that that is an option      10 for targeting Facebook ads? 06:25:30      11 A I would expect that that is one way of      12 contracting for ads. I'm not 100 percent sure      13 that, you know, right now there is that option.      14 Q Okay.      15 I'll just ask you to assume hypothetically 06:25:48      16 that is an option.      17 Would you expect that ads, Facebook ads      18 that are targeted to the friends of people who have      19 "Liked" an advertiser's content, would have a higher      20 CTR than Facebook ads that are not so targeted? 06:26:06      21 A Yes, I would expect that would be the      22 case.      23 Q And that's because of the homophily      24 effect; that is, people who have "Liked" motorcycles      25 would tend to have Facebook friends who are also 06:26:31</p>	<p>1 Is it your understanding that the 06:28:04      2 targeting of ads to the friends of people who have      3 "Liked" an advertiser's content is in any way      4 challenged in this lawsuit, or do you not know one      5 way or the other? 06:28:16      6 A Is it my understanding targeting ads is a      7 subject -- is -- is part of the complaint?      8 Q Yes.      9 A I don't think targeting itself is part of      10 the complaint, in my understanding. 06:28:33      11 Q So would you agree that a comparison of a      12 sponsored story that is targeted to the friends of      13 people who have already "Liked" an advertiser's      14 content includes a CTR boost simply related to the      15 targeting and the homophily effect? 06:28:58      16 MR. OSBORNE: Objection; compound.      17 THE WITNESS: No, I wouldn't agree with      18 that. I think homophily is a characteristic that      19 certain networks exhibit. That's from a technical      20 point of view of the theory of networks. That's one 06:29:21      21 of the underlying causes of the increased      22 effectiveness of sponsored story ads. It's one      23 aspect. It's not -- it's not sufficient, but it's      24 an underlying cause. It's not the direct cause.</p>
<p style="text-align: center;">Page 246</p>	<p style="text-align: right;">Page 248</p> <p>1 interested in motorcycles, so they would be more 06:26:33      2 likely to click on an ad for motorcycles?      3 A Correct. That's not to mean that all of      4 their friends would be motorcycles enthusiasts, but      5 there would be a higher proportion of that type of 06:26:47      6 person in that person's social network.      7 Q What's the widest audience that a      8 sponsored story can be shown to?      9 A From what I recall from the description      10 of sponsored story ads, I think it would be friends 06:27:06      11 of the person who appears as the endorser --      12 Q Okay.      13 A -- on the friends.      14 Q Have you done anything at all to quantify      15 the homophily effect that occurs to increase the 06:27:25      16 click-through rates of sponsored stories?      17 MR. OSBORNE: Lacks foundation, assumes      18 facts.      19 THE WITNESS: Since I haven't analyzed all      20 the data produced in connection with sponsored 06:27:46      21 stories, I haven't done that type of study. The      22 homophily effect is one of the reasons why sponsored      23 story ads would be expected to be more effective.      24 BY MR. GUTKIN:      25 Q Okay. 06:28:03</p>

Page 247

Page 249

Pages 246 to 249

<p>1 that the standard ads be limited to those that are 06:31:09      2 targeted to the friends of people who have "Liked" 06:31:09      3 the advertiser's content?      4 A I wouldn't agree that that is the general 06:31:30      5 case. The comparability could still be proper in 06:31:30      6 the sense of using a control that is targeted at a 06:31:30      7 wider audience.      8 Q Well, how -- if you used a control 06:31:51      9 targeted at a wider audience, how would you separate 06:31:51      10 out the homophily effect from the CTR differential 06:31:51      11 you measure?      12 A Well, in my opinion, the homophily effect 06:32:13      13 is an underlying characteristic of the social 06:32:13      14 network. It's not the cause. It's an underlying 06:32:13      15 characteristic. It can be interpreted as the 06:32:13      16 reason why sponsored story ads would work better. 06:32:13      17 But sponsored story ads are distinct in that they 06:32:37      18 have a friend endorsement that is made explicit. 06:32:37      19 So the control may have -- in principle, would have 06:32:37      20 to be a comparable ad, otherwise, except that it 06:32:37      21 does not have the friend endorsement.      22 Q Well, that was the previous question.      23 In order for -- in your view as an 06:32:53      24 economist, in order for the comparison to be 06:32:53      25 reasonable and to isolate the value of the friend 06:32:53</p>	<p>1 campaign or even industry, that the homophily effect 06:34:24      2 explains the entirety of the differential.      3 Do you agree with that?      4 A I don't think that would be an 06:34:40      5 explanation, and it wouldn't be 100 percent of an 06:34:40      6 explanation.      7 Q It's your intuition that it would not be 06:34:54      8 100 percent, but you don't know how much it is, 06:34:54      9 correct?      10 A I don't even agree that isolating the -- 06:34:54      11 trying to isolate the effect of homophily in that 06:34:54      12 comparison would be the proper method.      13 Q That's fine.      14 I'm not asking you to agree with my 06:35:06      15 approach. I'm just clarifying.      16 Your methodology does not separate the 06:35:06      17 homophily effect from the endorsement value in 06:35:06      18 looking at that click-through rate differential?      19 MR. OSBORNE: Assumes facts.      20 BY MR. GUTKIN: 06:35:26      21 Q I'm clarifying that your method does not 06:35:26      22 separate those two things?      23 A The method does not separate the effects 06:35:38      24 of two things that are not in the same plane of 06:35:38      25 abstraction. So the homophily is one 06:35:38</p>
<p>1 endorsement, would the control have to be targeted 06:32:55      2 only to the friends who have -- sorry -- the friends 06:32:55      3 of users who have connected with the advertiser's 06:32:55      4 content in order to exclude the homophily effect 06:32:55      5 from the data? 06:33:11      6 MR. OSBORNE: Assumes facts.      7 THE WITNESS: It wouldn't have to be 06:33:25      8 limited, unless testing for the homophily effect was 06:33:25      9 the sole objective. It's not the only reason why 06:33:25      10 sponsored story ads are expected to work. There are 06:33:25      11 other effects. So in my methodology, my 06:33:25      12 declaration, I'm not talking -- that methodology 06:33:25      13 does not set that standard ad as a standard ad to 06:33:25      14 test or control for homophily.      15 BY MR. GUTKIN: 06:33:45      16 Q I appreciate that.      17 So your -- your methodology does not allow 06:33:57      18 you to measure the importance of the homophily 06:33:57      19 effect on the differential between the sponsored 06:33:57      20 story CTR and the comparison ad CTR, correct?      21 A It's not designed to isolate one of the 06:33:57      22 factors behind the effectiveness of sponsored story 06:33:57      23 ads. That's not -- that's not what it's doing.      24 Q Okay.      25 And it's possible in, for any given 06:34:20</p>	<p>1 characteristic underlying the effectiveness of 06:35:44      2 friend endorsement. So it's -- it's like saying -- 06:35:44      3 to put it simply in another hypothetical, a boxing 06:36:11      4 match does not compare the abilities of one boxer, 06:36:11      5 or does not rule out the comparison of the 06:36:11      6 abilities of one boxer, to the race of both boxers. 06:36:11      7 It's not the same thing, so race has nothing to do 06:36:11      8 with abilities, but abilities can be associated 06:36:11      9 with race.      10 Q Let me try and come at it from another 06:36:30      11 direction.      12 If you performed your F calculation for 06:36:47      13 the automobile industry and found a zero -- sorry -- 06:36:47      14 .02 differential between the sponsored stories in 06:36:47      15 the automobile industry and whatever comparison ad 06:36:47      16 you chose, you would not be able to say how much of 06:36:47      17 that .02 differential is attributable to homophily, 06:36:47      18 correct?      19 MR. OSBORNE: Incomplete hypothetical.      20 THE WITNESS: The only way to draw that 06:37:05      21 conclusion is if those two comparisons, the only 06:37:05      22 difference between the two, would be a network of 06:37:05      23 friends that do not exhibit homophily and a network 06:37:05      24 of friends that do.      25</p>

Page 251

Page 253

Pages 250 to 253

<p>1 articles, those are not online advertising agencies, 07:04:53 2 right? 3 As to online advertising agencies, there 4 is only the two examples you found? 5 A I have materials from those -- from two 07:05:02 6 advertising agencies. And there is also a more 7 general analysis that I also found, but I didn't 8 cite that one in particular. 9 Q The more general analysis is not for 10 online advertising agencies; it's for people like 07:05:16 11 Nielsen and that sort of thing? 12 A No, it's another one that I didn't have 13 time to properly include because it was a very 14 complicated diagramming of the whole online 15 advertising industry. 07:05:33 16 Q What's the -- what was the -- 17 Can you describe that? Is it from a 18 company that put out that analysis? 19 A Some company that has an analytics 20 software package. 07:05:46 21 Q Do you know the name of it? 22 A I don't recall the name right now. 23 Q Did you find it by Googling, or how did 24 you find it? 25 A Yes, a lot of the research that I did was 07:05:54</p>	<p>1 want to make sure I understand. 07:07:38 2 Is it anything different than just actual 3 revenue times 1 minus F for calculating the damages 4 for cost-per-impression sponsored stories? 5 A If we have the actual revenue number, 07:07:48 6 then that's -- that's fine. 7 Q Otherwise, it would be like the 8 cost-per-impression price, times the number of 9 impressions. Is that what you mean? 10 A Correct. 07:08:03 11 MR. GUTKIN: Okay. Why don't we go off 12 the record. 13 THE VIDEOGRAPHER: The time is 7:08, and 14 we're going off the record. 15 This concludes today's testimony given by 07:08:25 16 Fernando Torres -- 17 MR. GUTKIN: I apologize. I meant go off 18 the record so I can look at my notes. 19 THE VIDEOGRAPHER: I'm sorry. 20 We'll just go off the record then. This 07:08:35 21 does not conclude testimony for the day. The time 22 is 7:08. 23 (Brief pause in proceedings.) 24 THE VIDEOGRAPHER: The time is 7:11, and 25 we are back on the record. 07:11:47 Page 274 Page 276</p>
<p>1 through Google. 07:05:57 2 Q Okay. [REDACTED] 07:06:24 [REDACTED] [REDACTED] [REDACTED] [REDACTED] 07:06:34 [REDACTED] [REDACTED] [REDACTED] [REDACTED] [REDACTED] 14 Q Okay. 15 Are you planning to use your methodology 07:06:51 16 and the actual revenue times 1 minus F to compute 17 damages for cost-per-impression sponsored stories? 18 A Yes, I anticipate that the proper 19 conversion would be documented and included in the 20 calculation. 07:07:19 21 Q So you would use the same methodology for 22 cost-per-impression sponsored stories? 23 A Adjusting the inputs for -- you know, in 24 the proper way, yes. 25 Q What adjustment would you make? I just 07:07:36 Page 275</p>	<p>1 MR. GUTKIN: And I have no further 07:11:49 2 questions, subject to any questions your counsel 3 might have. 4 MR. OSBORNE: I have no questions. 5 THE VIDEOGRAPHER: The time is 7:12, and 07:11:57 6 we are off the record. This concludes today's 7 testimony given by Fernando Torres. 8 The total number of media used was six and 9 will be retained by Veritext, LLC. 10 (Time noted: 7:12 p.m.) 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 Page 277</p>

Pages 274 to 277

1 STATE OF CALIFORNIA )	1 I N D E X
2 ) ss	2 EXHIBITS FOR IDENTIFICATION
3 COUNTY OF SAN FRANCISCO )	3 DEFENDANTS' PAGE
4	4 Exhibit 1065 Online NielsenWire 9
5 Reporter of the State of California, do hereby certify:	5 produced by Mr. Torres
6 That the foregoing proceedings were taken before me	6 Exhibit 1066 CV of Fernando Torres 11
7 at the time and place herein set forth; that any	7 Exhibit 1067 Declaration of Fernando 48
8 witnesses in the foregoing proceedings, prior to	8 Torres
9 testifying, were placed under oath; that the verbatim	9 Exhibit 1068 Plaintiffs' Statement of 50
10 record of the proceedings was made by me using machine	10 Facts
11 shorthand which was thereafter transcribed under my	11 Exhibit 1069 A Facebook document that 83
12 direction; further, that the foregoing is an accurate	12 at the top says "The Metropolitan Opera"
13 transcription thereof.	13 Exhibit 1070 Document used by 164
14 I further certify that I am neither financially	14 Mr. Torres to create the Nike campaign analysis,
15 interested in the action nor a relative or employee of	15 Bates Number
16 any attorney of any of the parties.	16 FB_FRA_000002748 through
17 IN WITNESS WHEREOF, I have this date subscribed my	17 -751
18 name.	18
19	19 PREVIOUSLY MARKED EXHIBIT
20 Dated: 4/12/12	20 EXHIBIT PAGE
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	Page 278
	Page 280
1 I N D E X	
2 April 11, 2012	
3	
4 FERNANDO TORRES	
5 EXAMINATION	PAGE
6	
7 (BY MR. GUTKIN)	5
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Pages 278 to 280